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Old Chemistry prepares for construction

Funding is still being sought for the renovation of the Old Chemistry building, which is slightly behind schedule.

Panola Construction of Batesville has been awarded the $3.2 million contract for Phase 2 of the project, according to Chad Hunter, associate university architect. Interior work, which is expected to take about a year, began in March.

"The building should be ready for occupation by February 2010," Hunter said. "That will be too late for the spring semester but right on time for summer session."

Since 2004, funding has come from the Mississippi Legislature, alumni, friends and the university.

"I want to thank the university administration for securing the state and university funds, and all the alumni and friends who participated in the campaign," said Dean Kai-Fong Lee. "Their contributions reflect their commitment to Ole Miss and the future of the School of Engineering. We are grateful for their support during this exciting and critical time for our school."

Lee said Old Chemistry will become the new centerpiece of the engineering complex, which includes Carrier and Anderson halls; the Charles E. Smith Engineering Science Building; part of Weir Hall, where the Department of Computer and Information Science is housed; and a new building to house the Center for Manufacturing Excellence. In addition to classroom and laboratory space, Old Chemistry will house the dean's office and administrative offices, a student resource center, a student lounge, engineering society offices, graduate student and visiting scholar offices, a distance-learning classroom and a

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Renovations have begun on the Old Chemistry building.

photo by Kevin Bain

From the Dean's Office

Kai-Fong Lee

I believe that for an organization to remain vibrant, new leadership is needed from time to time.

I have had the privilege of serving as dean of the School of Engineering at Ole Miss since January 2001. By June 30, I will have served 8 1/2 years. On Oct. 14, 2008, I made the announcement to the engineering faculty and staff that I had informed Provost Morris Stocks of my desire to relinquish my duties as dean on June 30, 2009. Dr. Stocks respected my wish, and a national search for my replacement has been under way since last November.

It has been a challenging but rewarding eight years. I am grateful for the support of Chancellor Robert Khayat, former Provost Carolyn Staton and Provost Morris Stocks. Their support has enabled engineering faculty salaries to be closer to the average of the Southern University Group (SUG) than any other school at Ole Miss. Their support has enabled the new engineering complex to be well on its way to becoming a reality.

The school has just acquired about 12,000 square feet of research laboratory space in the former Wal-Mart building across Jackson Avenue. The renovation of the Old Chemistry building, to be used exclusively for engineering, is scheduled for completion about a year from now. By the end of summer 2010, we anticipate the completion of a new building to house the Center for Manufacturing Excellence (CME). We are also planning for the renovation/expansion of Carrier Hall, which should be completed by August 2010.

Before moving on to the next phase of my life, I plan to be an active member of the electrical engineering faculty for a while. The "fun" things I would like to do include taking a sabbatical leave in fall 2009, during which time I shall complete a book on a type of modern antenna that has been the subject of my research for the last 28 years.

Looking back, it is amazing that a boy growing up in the countryside of Hong Kong in the 1950s has had a career spanning a number of academic and research institutions in Canada, Hong Kong and the United States. That he was given the opportunity to lead the Ole Miss School of Engineering for a period longer than any U.S. president's tenure since FDR seems particularly unreal. It has been a pleasure working with the engineering faculty, staff and members of the Engineering Advisory Board.

Looking forward, I sincerely hope that by June 30, 2009, we will be successful in our search for a new leader who can inspire the engineering faculty to the next level of excellence and that my successor will find the state of the school to be better than I found it in January 2001.

Kai-Fong Lee

Manufacturing center board sets agenda in first meeting

photo by Kevin Bain

The advisory board for the Center of Manufacturing Excellence held its first meeting last fall.

Despite government bailouts and concerns about a global economic recession, plans for the Center for Manufacturing Excellence at The University of Mississippi continue full speed ahead.

Gov. Haley Barbour said he is convinced that Mississippi has the potential to be as advanced in manufacturing as anywhere else in the world. "Despite what's happening in the world today, we're on the right side of what's going to happen in manufacturing for at least two generations, maybe longer," Barbour said at the CME's first advisory board meeting, held Oct. 31. "We're already competing successfully with the industries that we have. With the addition of the CME, we can only go forward."

Presidents, plant managers and senior administrators representing 16 industries, lending institutions and federal and state government agencies gathered at The Inn at Ole Miss to discuss short- and long-term goals for establishing the center. The meeting's agenda included introductions, the creation of committees and a discussion of the center's mission, financial sustainability and renderings.

"Because nothing like the Center for Manufacturing Excellence has ever been done before, there's a lot we have yet to learn," said James Vaughan, F.A.P. Barnard Distinguished Professor of Mechanical Engineering and interim director of the center. "We need everyone involved to have a better understanding of what manufacturing really is and how we can help produce a stable workforce for it in the state and region."

Advisory board members from Mississippi industry include Fred Carl, president and CEO of Viking Range Corp. in Greenwood; Anthony Topazi, president and CEO of Mississippi Power Co. in Gulfport; Kristie Sturgeon, plant manager of General Electric Aviation in Batesville; Joey Tarrant, vice president of H.M. Richards Furniture Co. in New Albany; Irwin Edenzon, general manager of Northrop Grumman Shipbuilders of Pascagoula; Charles Holder, CEO of Hol-Mac Corp. in Bay Springs; and Markeeva Morgan, manager of independent assessments and continuous risk management for NASA in Huntsville, Ala.

Representing Toyota Motor Manufacturing Mississippi in Tupelo are President Misao Fukuda and Vice President for Administration David Copenhaver. Toyota supplier member Dennis Cuneo of Covington, Ky., serves on the committee as adviser to Gov. Barbour. Paul Johnson of Oxford represents the governor's office on the board.

Other CME committee members are Emily DeRocco, senior vice president of the National Association of Manufacturers in Washington, D.C.; Aubrey Patterson, chairman and CEO of Bancorp South in Tupelo; David Rumbarger, president and CEO of the Community Development Foundation in Tupelo; and Eric Clark, president of the Mississippi Association of Community Colleges in Brandon.

For more information about the Center for Manufacturing Excellence, visit www.olemiss.edu/cme.

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large state-of-the-art auditorium. The National Center for Computational Hydroscience and Engineering, as well as part of the departments of Civil Engineering and Geology and Geological Engineering, will also be housed in the building.

Phase I of the renovation, which included the exterior and infrastructure, began in January 2007. The McCarty Company–Design Group of Tupelo is the project architect.

For more information on the Campaign for Engineering, call 662-915-5932 or visit www.olemiss.edu/depts/engineering_school/campaign. To make a gift online through The University of Mississippi Foundation, visit www.umf.olemiss.edu/secure/donorform_eng.asp.

Students travel to Turkey for geology field camp

by Kathryn Ruleman

Two School of Engineering seniors had a most memorable summer field-camp experience in Turkey.

Mike Rains, a geology major from Denver, Co., and Emily Woolsey, a geological engineering major from Oxford, spent five weeks in Western Asia to complete their requirements for graduation.

"Turkey was a rare opportunity to explore with professional geologists [who have] extensive knowledge of the local geology," Rains said.

The students spent three weeks at the Earthquake Research Center, located on the North Anatolian Fault in Taskesti.

"I was stoked on the opportunity to explore Turkey, especially for the chance to study along the North Anatolian Fault Zone, because it is one of the few places on Earth where rocks formed in the mantle are exposed at the surface and remain so well preserved," Woolsey said.

Both students spent a week at the Cayirhan coal-mine facilities. The students also spent a week in Kaman, Kireshir, at the facilities of the Hirfanli Hydroelectric Dam working with engineers there. Some of their projects included preparing maps and writing reports. Woolsey and Rains also made stratigraphic columns of either side of the Mudurnu Valley walls to correlate the movement and deformation of units caused by the fault running through the valley.

Woolsey spent two days underground at the Cayirhan coal mine observing the active mining of two coal seams and working in the proposed mining area, mapping faults present along scan lines to help improve the mine's dewatering system to divert groundwater seeping into the mine through the faults. Working in the coal mine for nine-hour shifts was a great experience, but it was the most physically challenging task at field camp, Woolsey said.

'I was stoked on the opportunity to explore Turkey, especially for the chance to study along the North Anatolian Fault Zone, because it is one of the few places on Earth where rocks formed in the mantle are exposed at the surface and remain so well preserved.'

— Emily Woolsey

Emily Woolsey (below) and Mike Rains studied in Turkey last summer.

photos courtesy of Emily Woolsey

Some of her other projects included geological mapping, modeling landslides, evaluating steam quality, evaluating rock mechanics of road cuts and determining a prospective dam site. She studied the structural geology of a shear zone of the North Anatolian Fault and researched the major earthquakes along the fault.

"Field-camp projects require you to apply and combine concepts learned in various courses to see the big picture," Woolsey said.

Woolsey described Turkey as a "transition between Eastern and Western traditions." She was also in a major transition period of her own life.

Woolsey's father, James Robert "Bob" Woolsey, was killed in an automobile accident 10 days before she was scheduled to leave for Turkey.

"Losing your rock is a tough challenge," Woolsey said. "I struggled with the decision of traveling to Turkey or staying at home with my family, but I knew Dad would somehow let me know what to do."

Woolsey said she needed a rock hammer for her field-camp study. After her father passed away, she found a rock hammer in her room that her father had just bought her the week before he passed away, she added. Woolsey said her mother told her that her father was planning on giving her the rock hammer before she left for Turkey.

After talking with her family and the geology faculty and staff, who she said were "very supportive," Woolsey decided to travel to Turkey for her geological engineering field camp.

"I knew [my father] would have wanted me to go, and I decided to start this period of transition with a journey, as he would have done," Woolsey said. She said since her father was a geologist, she felt close to him while she was working in the field.

"Dad will certainly live on within me and in the hearts of so many others he inspired throughout his life," Woolsey said.

Rains and Woolsey studied through the South Dakota School of Mines and Technology, SDSM&T, with students and faculty from U.S. geology programs from across the nation. Geology and geological engineering students have the option to travel to South Dakota or Turkey to complete their field-camp study for the same tuition price, Rains said.

The Black Hills Natural Sciences Field Station, part of the SDSM&T's School of Geology and Geological Engineering Department, is a cooperative program formed by a consortium of colleges and universities that offers a variety of field courses in both geology and geological engineering.

Rains and Woolsey are the first UM students to attend the program in Turkey.

Nuclear engineering arrives at UM

With global efforts intensifying to find alternatives to fossil fuels, UM is pointing students toward career opportunities in nuclear engineering.

Elizabeth Ervin

With funds from a Nuclear Regulatory Commission education grant, UM's Department of Civil Engineering has created a new course, "Introduction to Nuclear Engineering." Employees of Southern Nuclear Operating Company have reviewed the course outline, and both they and Entergy will contribute to the course content, including skills required of new hires.

The multidisciplinary technical course is to be offered as an elective to seniors and first-year graduate students beginning in fall 2009. "The world's energy crisis is deepening as population grows and oil prices skyrocket," said Elizabeth Ervin, a civil engineering professor who authored the proposal and created the class. "As more and more countries turn to nuclear plants to ease their power grids, the demand for qualified graduates in nuclear-related industries increases. The University of Mississippi needs to provide future engineers the opportunity to choose their careers in the nuclear industry."

Students taking the course will learn facts regarding the nuclear industry and be able to make informed decisions, Ervin said. Among those facts: Careers in nuclear-related industries can be quite lucrative, especially for engineers.

"U.S. Department of Labor statistics show that engineers in the nuclear industry command the third-highest salaries of all engineers," Ervin said. "Nuclear engineer salaries often range from $90,000 to $124,000 annually."

Students will be trained for introductory positions at the 32 U.S. nuclear operating companies and four manufacturing companies. Potential jobs vary from plant design and operation to environmental research.

The new academic offering has already received strong support from university administrators, as well as School of Engineering faculty and staff.

"This project satisfies several of the civil engineering department's long-range goals, most specifically, improving and maintaining an effective, state-of-the-art undergraduate curriculum," said Alexander H.D. Cheng, chair and professor of civil engineering. "This project is sustainable for future offerings, which will most certainly aid in maintaining accreditation with the Accreditation Board of Engineering and Technology."

UM engineering students will soon have greater career opportunities thanks to a new course in nuclear engineering.

photo by Nathan Latil

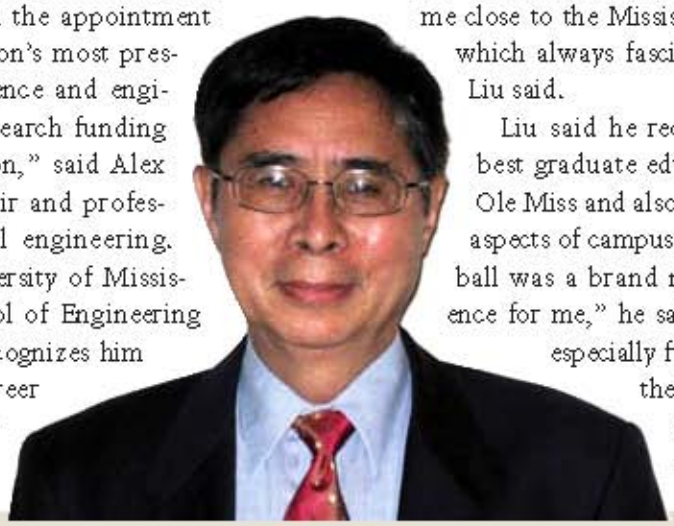
NSF environmental director named UM Engineer of Distinction

Joining the ranks of ExxonMobil executives and NASA chiefs, alumnus Clark C.K. Liu (MSCE 69), environmental engineering program director for the National Science Foundation (NSF), was recently named the 2009 Engineer of Distinction by The University of Mississippi. The title is bestowed annually on a truly exceptional engineer associated with the School of Engineering.

"I was very excited by the news of being selected to receive the Engineer of Distinction award," Liu said. "It is not only a great honor for me but also presents an opportunity for me to revisit a place that has been so important to my personal and professional development."

Liu recently completed two federally sponsored research projects: an NSF project to develop an engineering system for open ocean mariculture using nutrient-rich deep ocean water; and a U.S. Bureau of Reclamation project to develop a wind-powered reverse-osmosis system for water desalination and treatment.

"An expert in environmental fluid mechanics, Dr. Liu's research has earned him the appointment in the nation's most prestigious science and engineering research funding organization," said Alex Cheng, chair and professor of civil engineering. "The University of Mississippi School of Engineering proudly recognizes him for his career achievements and scholarship."



Clark Liu

A graduate of National Taiwan University, Liu came to Ole Miss in 1967 in response to an offer from Sam DeLeeuw, retired chair and professor of the Department of Civil Engineering.

"I had a dream that someday I would have an opportunity to work on large rivers. Attending Ole Miss brought me close to the Mississippi River, which always fascinated me," Liu said.

Liu said he received "the best graduate education" at Ole Miss and also enjoyed all aspects of campus life. "Football was a brand new experience for me," he said. "It was especially fun to watch the Rebels play and win."

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Students visit oil field to sequester carbon-dioxide emissions

by Kathryn Ruleman

UM students recently got hands-on experience with a technique that may help alleviate the effects of climate change thanks to their professor's field research on sequestering carbon-dioxide emissions.

Eleven geology and geological engineering students accompanied Associate Professor Robert M. Holt on a trip to the Cranfield Oil Field near Natchez. Cranfield has been deemed a Phase III site field by the Southeast Regional Carbon Sequestration Partnership (SECARB), an organization created by the U.S. Department of Energy to help determine the best approaches for capturing and storing carbon-dioxide emissions in the southeastern U.S. by geographically linking sources with potential sequestration sinks. The University of Mississippi is an industrial field-test partner.

"The more hands-on, real-world experience students have, the better off they will be, because it gives them a leg up on students from other universities," said Holt. "[Because of the practical experience] our graduates will be prepared for their first jobs, promoted faster and ultimately be more successful."

The Cranfield Oil Field in Natchez was an ideal place for students to investigate sequestering carbon-dioxide emissions last fall.

Holt, who was asked by the University of Texas to participate in the four-year SECARB project, said that in his research, his primary responsibility is monitoring shallow aquifers to see if carbon dioxide is moving up the old drill holes.

Frank Roecker, a senior geological engineering major from Roswell, Ga., said visiting the site helped the students understand the geology and hydrogeology of the area.

While they were there, the class drilled and observed a 240-foot test well. They also recorded data from core samples of rock sediment taken

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NASA co-op leads to possible employment

Some seniors may be uncertain about life after graduation in May, but Joey Parkerson isn't among them thanks to his co-op experience at NASA's Kennedy Space Center.

The chemical engineering major from French Camp, Miss., was selected for the program last spring. He spent the summer as a cooperative student for the International Space Station Fluids and Propulsion Division. Parkerson will return to Cape Canaveral, Fla., this summer to continue his co-op rotation.

Parkerson said his duties last summer included managing a high-fidelity emulator for ISS space flight hardware testing, assisting the middeck crew for the landing of space shuttle STS-124 and providing daily support of space flight hardware processing.

"Of all the amazing sites I saw at KSC, the one most memorable for me was much of the current work going on to prepare for the new Constellation program that will take man back to the moon," Parkerson added.

Parkerson expressed his gratitude to all of those at the School of Engineering.

"Cape Canaveral is a long way from French Camp," Parkerson said. "Without the education and professional training I have gained through the chemical engineering program here, my dream of working at Kennedy Space Center would have remained merely a dream."

The university began the cooperative partnership with Kennedy Space Center after alumnus William W. "Bill" Parsons (BAE 79) was appointed KSC's ninth executive director in January 2007. In addition to sending a recruitment team, Parsons recently invited Ole Miss engineering faculty to attend a space shuttle launch and brought an interactive mobile exhibit to campus.

Senior chemical engineering major Joey Parkerson's summer experience at NASA's Kennedy Space Center was out of this world.

ME professor brings space experience back to campus

Like NASA's astronauts who return from space explorations enthused by new information about the universe, Ellen Lackey came back from Kennedy Space Center eager to share her experiences with Ole Miss engineering students and faculty.

The associate professor of mechanical engineering spent six weeks at Cape Canaveral, Fla., as an ESMD (Exploration System Mission Directorate) Space Grant Program faculty fellow. While there, she met with engineers from the launch-services program, the Constellation project office, applied technology, the launch-integration office, the ISS and spacecraft-processing directorate, information technology and communications services, and the engineering directorate.

"I had the unique opportunity to interact with NASA engineers in a variety of technology areas," Lackey said. "Students will benefit as I share my real-world experiences and incorporate my knowledge of NASA into course work and projects."

Lackey said her experience will also enable her to better advise her students concerning internships, co-ops, graduate fellowships and employment related to NASA.

"While a faculty research project gives a faculty member the opportunity to interact with specific NASA personnel, this project is unique in that it makes a broader impact on the overall educational and teaching activities of a faculty member," Lackey said.

Professor Ellen Lackey spent last summer as a faculty fellow at Kennedy Space Center.

Chemical engineering students Elizabeth Spence (left), Damon Webster and Chris Turbeville prepare for Mathcounts.

EWeek celebrates engineering

Climbing a rock wall at the new Ole Miss Outdoors Rebel Challenge Course and an engineering-related scavenger hunt were highlights of this year's EWeek at Ole Miss.

National Engineers Week (EWeek) is observed annually around the country to celebrate and increase public awareness of the engineering field. This year, it was held Feb. 15-21. The School of Engineering offers several events and activities in conjunction with EWeek, many of which are coordinated by the Engineering Student Body (ESB) to encourage participation of current and prospective engineering students.

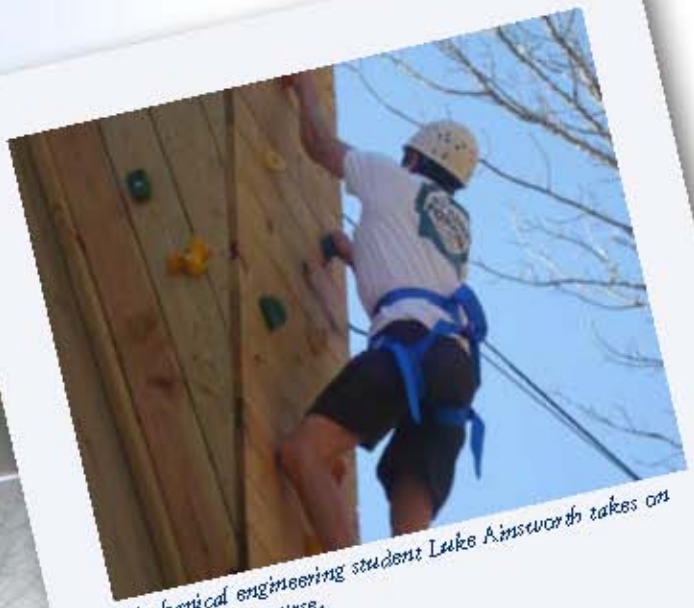
This year's ESB-sponsored EWeek activities also included a career fair, a lunch catered by Taylor Grocery and sponsored by the School of Engineering, a quiz bowl and a faculty and staff appreciation breakfast. Closing out the week, many engineering students volunteered with the regional Mathcounts middle-school mathematics competition held on campus on Feb. 21.

Girls discover School of Engineering

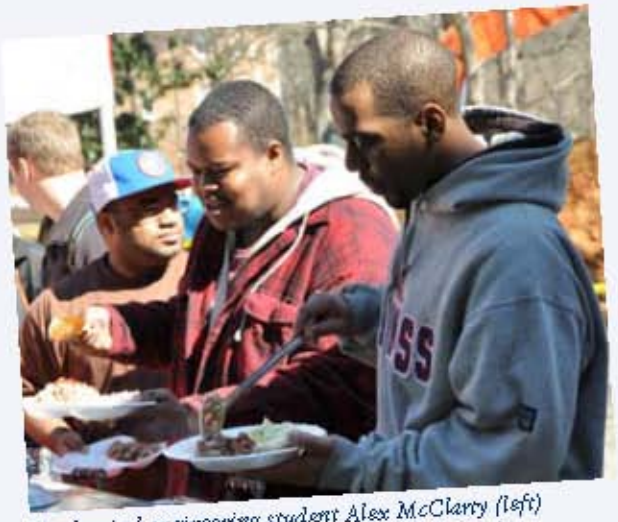
Prospective female engineering students from Oxford, Lafayette and Seminary High Schools and Pearl River Community College were recently treated to a day of engineering-related activities on campus.

In conjunction with National Engineers Week, the Ole Miss chapter of the Society of Women Engineers (SWE) hosted its annual "Introduce a Girl to Engineering Day" on Feb. 26. SWE representatives organized presentations in several School of Engineering labs and arranged for a panel discussion with faculty representatives from each department. The visiting students also toured Rowan Oak, and the School of Engineering sponsored a group lunch at the Rib Cage.

Chemical engineering student Joey Parkerson gives a demonstration to girls from local high schools.



Mechanical engineering student Luke Ainsworth takes on the challenge course.



Mechanical engineering student Alex McClarry (left) and chemical engineering students Chris Brownlee and Joseph Wesley take part in EWeek's cookout.

Civil engineering students Wesley Phillips (left), Christine Frost, Eames Henley and Nick Farney show off the $100 prize they earned in the quiz bowl.

Engineer of Distinction,
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After earning his master's degree in 1969, Liu entered the New York State Division of Water Resources, obtained his New York State Professional Engineer license and received a graduate fellowship from Cornell University to complete his doctorate there in 1979. He joined the University of Hawaii faculty in 1980 and was promoted to full professor in 1989. For 29 years, Liu served as the principal investigator of more than 10 research projects sponsored by the U.S. Environmental Protection Agency, U.S. Geological Survey, NSF, USBR and other agencies. In all, his research efforts have yielded more than 70 scientific publications.

Liu has been the program director for environmental engineering at NSF since January 2008 through an agreement with the University of Hawaii. He is a fellow of the American Society of Civil Engineers and a member of the Chinese Lutheran Church of Honolulu. Liu and his wife, Diane, are the parents of three children and have three grandchildren.

SECARB,
continued from Page 6

at various depths and took water samples from existing wells using a noncontact gas pump and hand bailers. They used the data collected during the visit to create a conceptual hydrological model for the site.

To add to the experience, the students camped at Natchez State Park, braving the harsh winter weather, including a morning rainstorm that presented a problem at the work site.

"The weather did create a challenge, but we made it through just fine," Roecker said.

Holt thought the inconvenience added another element of practical learning. "The horrible weather made the project feel like every real job I have worked on because when something goes wrong, you have to figure out a way to complete the task even if it is not comfortable," Holt said.

For more information about SECARB, visit www.secarbon.org.

Giving Back

Scholarship paves way for engineering education

Henry Allen Walker (BSEE 76) of Southaven believes in giving back.

As the first in his family to earn a college degree, the engineering alumnus has decided to make the same opportunity available to another Mississippian by creating an all-expenses-paid endowed scholarship in the School of Engineering.

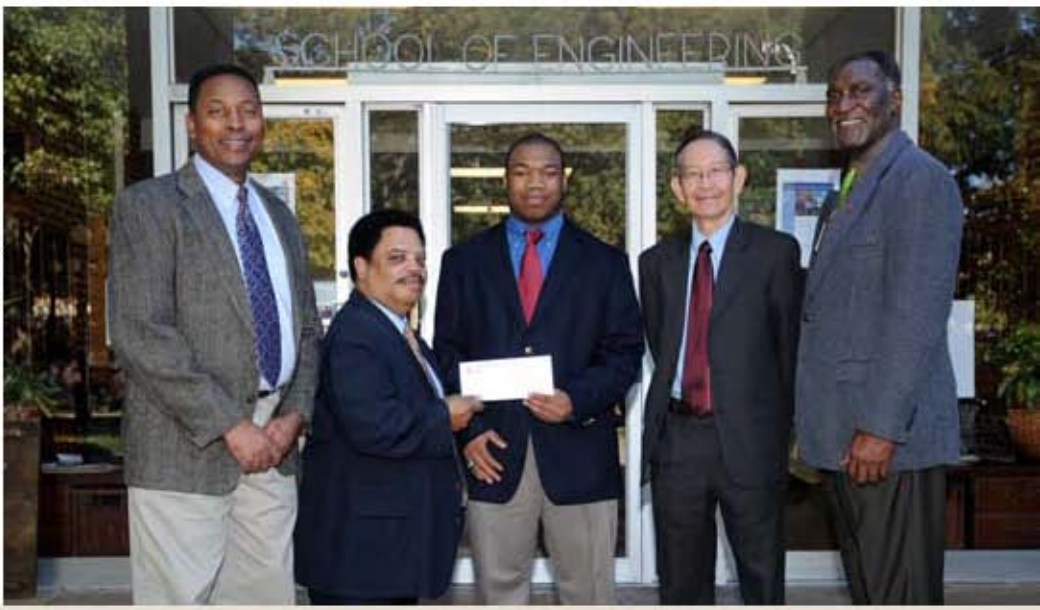
Walker said he established the scholarship as a tribute to his late parents.

"Neither of my parents had the opportunity to finish high school, but they knew the value of having an education to provide and pursue opportunities for a better life," Walker said. "Their encouragement, sacrifices and hard work gave me the opportunity to attend Ole Miss and become the first member in my family to earn a college degree."

A native of Louisville, Walker received an MBA from the University of Southern Mississippi in 1983. A longtime employee of International Paper Company, he has served on the UM Alumni Association board of directors, the Engineering Alumni Board, the steering committee for the Campaign for Engineering Excellence and the Black Alumni Advisory Board. He has been building the John Henry Walker and Lillie Mae Sanders Walker Memorial Scholarship endowment since the 1990s.

William Anthony Peoples of Aberdeen was selected last fall as its inaugural recipient. Peoples, a freshman, expressed his appreciation for being chosen for the scholarship, which will cover tuition, room and board during

photo by Nathan Latil



John Henry Walker and Lillie Mae Sanders Walker Memorial Scholarship recipient William Anthony Peoples (center) of Aberdeen is congratulated by Tyrus McCarty (left), administrator of special affairs in engineering; Henry Allen Walker, engineering alumnus who established the award; Kai-Fong Lee, engineering dean; and Donald Cole, assistant to the chancellor.

Conference addresses advances in underwater mining

Even faced with a sagging global economy, marine mining promises to remain a steady—even growing—commercial enterprise. However, experts agree that as extraction technology develops so does the need for greater environmental awareness and protection.

Such was the consensus reached Nov. 18 during the opening session of the 38th annual conference of the Underwater Mining Institute hosted at The University of Mississippi. Approximately 80 members of the International Marine Minerals Society attended the two-day meeting.

"Substantial technological progress has been made during the past several years in efforts to advance exploration and mineral-recovery techniques for deep seabed minerals," said Charles Morgan, UMI program chair and former president of IMMS. Morgan is affiliated with the Hawaii Undersea Research Laboratory. "This year's conference included presentations from distinguished professionals representing an excellent group of international firms that have in recent years been making solid progress toward the development of reliable technologies for marine mining."

In addition to technological development, conference sessions addressed the environmental impact of marine mining operations. Philomene Verlaan, IMMS secretary, for example, presented her recommendations on how the 2001 Code for Environmental Management of Marine Mining should be updated, as well as an analysis of sug-

his time in the School of Engineering. "This award really helped me decide to come to Ole Miss," Peoples said. "I wouldn't be here without it."

Peoples is a graduate of Aberdeen High School. His parents are Tony and Sandra Peoples of Aberdeen. Upon completion of his bachelor's degree, his career goal is to work in the GPS department of a major manufacturer such as Toyota Motor Company.

Scholarship recipients must be full-time UM students pursuing engineering degrees. Preference is given to Mississippi residents who are from historically disadvantaged ethnic groups, have substantial financial need and participate in community service.

Walker, who is now concentrating on growing the endowment in hopes of increasing the amount of the scholarship and number of recipients, asks one other thing of those who receive the scholarship: "Make the same decision," he said. "Give back. Help somebody else."

Research group spotlighted in EMI News

A University of Mississippi civil engineering research group was featured in the December issue of the Engineering Mechanics Institute's online newsletter.

The Nano-Infrastructure Research Group, which applies recent developments in nanotechnology to the more traditional areas of civil engineering, was reported as one of the first in the nation to have made advancements in such research.

Nanotechnology refers to the use of matter on an atomic and molecular scale. Generally, it deals with structures that measure only 100 nanometers or smaller and involves developing materials or even tiny machines within that size. A nanometer is one-billionth of a meter.

Alexander Cheng, chair and professor of civil engineering, said his article presents the research group's goals, which include understanding the mechanics of nanomaterials and using the nanomaterials to improve the nation's infrastructure, including

photo by Robert Jordan

Alex Cheng

buildings, roadways and bridges. A sampling of the group's research topics and research projects, lists of selected publications and links to relevant Web pages are also included.

To view Cheng's article in *EMI News*, visit http://email.asce.org/emi/documents/NanoInfrastructureResearchGroupatOleMiss.pdf.

gested changes received from others, Morgan said.

Established in 1970, the Underwater Mining Institute is an annual conference that draws on the worldwide expertise of researchers, industry professionals, and environmental, resource and policy managers to provide the latest information relevant to seabed minerals. The theme varies each year, as does the location and host. Past venues include Canada, England, Korea, Germany and Japan. To date, more than 25 nations have been represented at the UMI.

The family of late Professor James Robert "Bob" Woolsey accepted the IMMS Moore Medal for Excellence in the Development of Marine Minerals that was to be presented to Bob during the UMI conference. "Dr. Woolsey was instrumental in organizing this year's special session on MMRI technology," said Robin Buchannon, who was technical program co-chair and conference host. Pictured are Dr. Charles L. Morgan, program chair (left); Emily Woolsey; Maxine Woolsey; Joe Woolsey; Max Woolsey; Professor Akira Usui, IMMS president; and Michael Cruickshank.

Lucky Number 3

Triple major takes third study-abroad trip to China

For the third summer in a row, Anna Hailey will be studying in China.

For the past two years, the senior from Muscle Shoals, Ala., has immersed herself in the language and culture of the country as a Chinese major studying abroad. This time though, she will return as the first Ole Miss engineering student to attend Zhejiang University, China's leading engineering school.

photo by Nathan Latil

Anna Hailey (right) and Paul Scovazzo, assistant professor of chemical engineering, chat in the unit operations lab.

"I'm very excited about doing research there," said Hailey, who also is majoring in chemical engineering and chemistry. Her study is part of a five-year research collaboration on controlling pollutants from coal-fired boilers. "My project will more than likely deal with carbon emissions," she added.

Hailey said that her dual desire to become an engineer and to be fluent in a foreign language was what led her to attend Ole Miss instead of Georgia Tech.

"I like that the School of Engineering faculty is so accessible to its students. I feel that I'm getting a competitive yet personal education here," Hailey said. "After I learned that Ole Miss offers a degree in Chinese, I knew that this was the right place for me."

Department chairs in Hailey's majors boast of her achievements.

"Anna is an exemplary student in every respect," said Clint Williford, chair and professor of chemical engineering. "She has maintained a strong GPA while pursuing a five-year, three-degree program. Through intensive study, she passed a language exam qualifying her to take engineering courses in China."

"Whenever I speak of the accomplishments of students in our department, I make sure to mention Miss Hailey," said Donald Dyer, chair and professor of modern languages. "She is one of the truly exceptional students in our Chinese Flagship Language Program, which has the highest of academic standards and which produces superior speakers of the language."

A student in the Sally McDonnell Barksdale Honors College, Hailey's extracurricular activities include serving as president of Tau Beta Pi, a member of Gamma Beta Phi, a senator in the Associated Student Body and an Ole Miss Ambassador. She has also been a member of the Pride of the South Marching Band color guard and an academic competition volunteer.

Upon her graduation in 2011, Hailey said she plans to attend graduate school. Her career goal is to become a researcher while utilizing her Chinese-speaking ability.

Engineering faculty publish books

Sam Shu-Yi Wang, F.A.P. Barnard Distinguished Professor and director of the National Center for Computational Hydroscience and Engineering, recently chaired an American Society of Civil Engineer's task committee that published a book on three-dimensional free surface flow model verification and validation. Wang and Yafei Jia, NCCHE assistant director, were among the volume's four editors. Reviewers and professionals in the field have praised the book, *Verification and Validation of Three-Dimensional Free Surface Flow Models* (ASCE Press, 2008), as one of the most important contributions to free surface flow modeling development.

Atef Elsherbeni, professor of electrical engineering, is the co-author of the book *The Finite Difference Time Domain Method for Electromagnetics: With MATLAB Simulations* (SciTech Publishing, 2009). Each of the book's 12 chapters builds on the previous, and the end result is a software package that can solve several types of basic electromagnetic problems.

Fan Yang, assistant professor of electrical engineering, is the author of *Electromagnetic Bandgap Structures in Antenna Engineering* (McGraw-Hill, 2008). The book is the first to be published on the subject.

New chair is research-driven and student-focused

As the chief scientist in the U.S. Army Research Office, Arunachalam Rajendran was the civilian equivalent of a brigadier general. His 20-year career is full of awards and honors that recognize his research achievements and scholarship. A fellow in several professional societies, he is internationally known and highly respected among those in his field. Notwithstanding, Rajendran still felt something was missing from his professional life.

"I wanted to make a significant contribution to improving both research and teaching in higher education," said Rajendran, who on Oct. 1 assumed his duties as the new chair of mechanical engineering at The University of Mississippi. "I had contacts and offers from Jackson State University and Mississippi State University, but I never even applied. This is the right place and the right time for me."

New Chair of Mechanical Engineering Arunachalam Rajendran (right) receives an award from Dr. John Parmentola, director of research and laboratory management for the U.S. Army, at the 26th U.S. Army Science Conference held in Orlando on Dec. 4, 2008.

Kai-Fong Lee, dean of the School of Engineering, said Rajendran's extensive administrative and research experience is highly respected in the academic community.

"We look forward to the Department of Mechanical Engineering reaching another level of excellence under his leadership," Lee said.

Rajendran said he also anticipates great things for the department and the university.

"With the creation of the Center for Manufacturing Excellence, there is a major opportunity for growth of the mechanical engineering program here," he said. "By increasing our faculty and becoming highly competitive with programs at other universities, we are on the launch pad to international acclaim."

A firm believer that personal relationships are key to success, Rajendran said he wants to see mechanical engineering be research-driven and student-focused.

"I hope to convince our faculty to not only achieve excellence in teaching but a commitment to professional development and research as well," he said. "We need a traditional approach when it comes to teaching and a non-traditional approach when it comes to research. Interdisciplinary collaborations are essential in order to remain competitive."

Born and raised in India, Rajendran earned his doctorate from the Department of Aeronautics and Astronautics Engineering at the University of Washington. Before serving as chief scientist in the Army Research Office, he was a team leader at Army Research Laboratory in Maryland, a mechanical engineer at the Army Materials Technology Laboratory in Massachusetts, and a group leader and associate research engineer at the University of Dayton Research Institute in Ohio.

In December 2008, a scientific paper written by Rajendran was selected by a panel of reviewers as the best in Advanced Computational Methods in Engineering and Physical Science. He received the award at the 26th U.S. Army Science Conference in Orlando. Rajendran's other awards include ICCES's Professor Eric Reissner Medal, the Army's Research and Development Achievement Award, the Wohlleben/Hochwalt Award and Martin/Marietta's Manned Space Systems Award. He is a member of the American Physical Society, an associate fellow of the American Institute of Aeronautics and Astronautics, and a fellow of both the American Society of Mechanical Engineers and the Army Research Laboratory.

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